

It is claimed:

1. A composition comprising nylon 6, nylon 66, or a mixture thereof, with about 1%-50% by volume of a mineral filler having an aspect ratio of less than about 5, the filler having an average equivalent spherical diameter in the range of about 0.1 to less than about 3.5 micrometers, and a saturated organic acid, a salt thereof, or a mixture thereof, at a concentration of at least 0.5% by weight of the mineral filler.
- 5 2. The composition according to Claim 1 wherein the composition comprises about 5-30% by volume of a mineral filler.
- 10 3. The composition according to Claim 1 wherein the composition comprises about 10-20% by volume of a mineral filler.
4. The composition of according to Claim 1 wherein the average equivalent spherical diameter is about 0.5 to about 2 micrometers.
- 15 5. The composition according to Claim 1 wherein the concentration of saturated organic acid, salt thereof, or mixture thereof is in the range of about 0.5-4%.
6. The composition according to Claim 1 wherein the saturated organic acid, salt thereof, or mixture thereof comprises one or more saturated fatty acids, salts thereof, or a mixture thereof.
- 20 7. The composition according to Claim 6 wherein the saturated fatty acid is stearic acid.
8. The composition according to Claim 4 wherein the saturated organic acid is stearic acid at a concentration of about 2% by weight on the weight of the filler.
- 25 9. The composition according to Claim 1 wherein the inorganic filler is calcium carbonate or titanium dioxide.
10. The composition according to Claim 1 comprising a shaped article.
11. A process for forming a composition comprising the steps of:
  - 30 (a) combining nylon 6, nylon 66, or a mixture thereof with a mineral filler having an aspect ratio of less than 5, the filler having an average equivalent spherical diameter in the range of about 0.1 to less than about 3.5 micrometers, and a saturated organic acid, salt thereof, or mixture thereof, at a concentration of at least about 0.5% by weight of the mineral filler, the filler and polymer being combined at a weight ratio given by the formula:
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$$W_f/W_p = [VF/(1-VF)] \cdot D_f/D_p$$

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where  $W_f$  is the weight of the filler,  $W_p$  is the weight of the polymer,  $VF$  is the desired volume fraction of filler, in the range of about 0.01–0.5,  $D_f$  is the density of the filler, and  $D_p$  is the density of the polymer;

5 (b) heating the combination to a temperature above the melting point of the nylon to form a molten composition;

(c) mixing the molten composition to provide a homogenous melt; and,

(d) cooling the molten composition.

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12. The process of Claim 11 wherein VF is in the range of about 0.10-0.20.
13. The process of Claim 11 wherein the average equivalent spherical diameter is about 0.5-2 micrometers.
14. The process of Claim 11 wherein the saturated organic acid, salt thereof, or mixture thereof comprises saturated fatty acids, salts thereof, or a mixture thereof.
15. The process of Claim 13 wherein the saturated organic acid is stearic acid at a concentration of about 2% by weight on the weight of the filler.
16. The process of Claim 14 wherein the saturated fatty is stearic acid.
17. The process of Claim 11 wherein the inorganic filler is calcium carbonate or titanium dioxide.